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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,713	01/12/2002	Vinh N. Le	180577-00160	1264

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NEW YORK, NY 10036

EXAMINER

NECKEL, ALEXA DOROSHENK

ART UNIT PAPER NUMBER

1764

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/044,713

Applicant(s)

LE, VINH N.

Examiner

Alexa D. Neckel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Diouron (4,538,423) in view of Wisniewski et al. (6,196,296).

With respect to claims 1, 4, 5, 7 and 8, Le Diouron discloses an apparatus comprising:

a reactor shell (1) having an inlet end tube sheet (17) and an outlet end tube sheet (3);

the shell having an internal reaction zone (not numbered, see figure 2) between the tube sheets (3 and 17);

at least one thermally conductive heat pipe (2) extending between the sheets (3 and 17) and the pipe extending through one of the tube sheets (see figures 2 and 4);

the reactor (1) having an inlet (4) and outlet (5) from the reaction zone;

a plurality of thermally conductive extended heat transfer surfaces (13) mounted to the heat pipe (2) for receiving the heat of the reactants and conveying it to the heat pipe and the surfaces forming channels for the flow of reactants in the zone (col. 2, lines 35-40); and

the heat pipe (2) having an evaporation section within the reaction zone (col. 5, lines 10-15) and containing a liquid heat transfer fluid (col. 2, lines 19-22).

While Le Diouron discloses all of the structure as discussed above, including having fins, Le Diouron fails to disclose any particular fin shape or design in the apparatus.

Wisniewski et al. teach a heat exchange device with a central heating/cooling pipe (8) with fins (6) attached thereto (col. 3, lines 5-8) of any shape (col. 3, lines 55-57) and the fins contain heat transfer fluid (col. 2, lines 34-36). Wisniewski et al. teach that this arrangement enhances heat transfer as well as achieves more rapid heat transfer (col. 2, lines 36-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fins having heat transfer fluid within them for the fins of Le Diouron in order to achieve enhanced heat transfer and more rapid heat transfer.

With respect to claim 2, Le Diouron further discloses wherein the heat pipe (2) is a sealed heat pipe (col. 2, lines 7-11) and the end which extends (7) through the tube sheet (3) is a condenser (col. 5, lines 10-15).

3. Claim 1, 3, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grunes et al. (4,393,663) in view of Wisniewski et al. (6,196,296).

With respect to claims 1, 6 and 9, Grunes et al. discloses and apparatus comprising:

a reactor shell (17) having an inlet end tube sheet (32) and an outlet end tube sheet (36);

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the shell having an internal reaction zone (16) between the tube sheets (32 and 36);

at least one thermally conductive heat pipe (41) extending between the sheets (32 and 36) and the pipe extending through one of the tube sheets (see figure 3, via 34);

the reactor (17), in order to be operational, inherently has an inlet and outlet from the reaction zone;

a plurality of thermally conductive extended heat transfer surfaces (41) mounted to the heat pipe (41) for receiving the heat of the reactants and conveying it to the heat pipe and the surfaces forming channels for the flow of reactants in the zone (see figure 3); and

the heat pipe (41) having an evaporation section (112) within the reaction zone (17) and containing a liquid heat transfer fluid (col. 5, lines 16-18).

While Grunes et al. disclose all of the structure as discussed above, including having fins, Grunes et al. fail to disclose any particular fin shape or design in the apparatus.

Wisniewski et al. teach a heat exchange device with a central heating/cooling pipe (8) with fins (6) attached thereto (col. 3, lines 5-8) of any shape (col. 3, lines 55-57) and the fins contain heat transfer fluid (col. 2, lines 34-36). Wisniewski et al. teach that this arrangement enhances heat transfer as well as achieves more rapid heat transfer (col. 2, lines 36-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fins having heat transfer fluid within them for the

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fins of Grunes et al. in order to achieve enhanced heat transfer and more rapid heat transfer.

With respect to claim 3, Grunes et al. further discloses wherein the heat pipe (41) is a thermosyphon heat pipe (col. 1, lines 6-8) which had a first end (18) which extends through the outlet tube sheet (36) and a second end (24) which extends through the inlet tube sheet (32), and the first (18) and second (24) ends are in fluid communication with a heat exchanger (14).

### ***Response to Arguments***

#### Specification

The objection to the specification is withdrawn due to applicant's amendment.

#### Drawings

The objection to the drawings is withdrawn due to applicant's cancellation of claims 16-18.

#### 35 USC 112, Second Paragraph

The rejections under 35 USC 112, second paragraph are withdrawn due to applicant's amendments to the claims.

#### 35 USC 102

Applicant argues that the device of Le Diouron does not operate at near isothermal conditions and therefore does not read on the reactor of the instant claims.

The examiner respectfully disagrees. An apparatus claim covers what a device is, not what a device does. MPEP 2114. Such an operational condition or intended use

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is not given patentable weight in the claim. The art as applied above discloses all of the recited structural limitations.

Applicant argues that Gruens does not disclose tube sheets.

The examiner respectfully disagrees. The headers of Gruens are equivalent structures to tube sheets in that can be seen in the figures as supporting the tubes of the device.

### 35 USC 103

Applicant argues that Wisniewski does not disclose sealed heat tubes, but that the heat tubes of Wisniewski have openings (disclosed in Figure 11).

The examiner have reviewed Wisniewski's description of Figure 11, col. 9, line 55- col. 10, line 9 and does not see anywhere that discusses openings in the fins which contain heating fluid.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

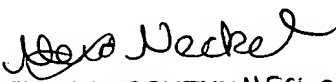
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa D. Neckel  
Examiner  
Art Unit 1764

October 17, 2005

  
ALEXA DOROSHENK NECKEL  
PRIMARY EXAMINER